**Software Development 3**

**Sample Continuous Assessment**

**1 hour 50 mins**

In this exercise you are required to write a set of classes to store passenger details about a flight.

The Flight class contains an inner class called Passenger. The requirements for each of the classes you need to create are documented below.

**Passenger class (Inner Class)**

The Passenger class has three member variables: name (String), age (int), number of bags (int)

Create a suitable constructor to intialise the member variables using the parameter list.

**Flight class (Outer Class)**

The Flight class has 3 member variables:

* capacity (int) and duration (double) of the flight
* a list of passengers (ArrayList)

Create a suitable constructor to:

* initialise the capacity and duration using a parameter list
* initialise the array list

Create a void method fillList() that takes a reference variable of type Passenger as a parameter and adds it to the list.

Create a void print() method that prints the name, age and number of bags for each passenger on a flight. In this method you also need to calculate and display the baggage charge for each passenger. Each passenger is entitled to 1 free bag and must pay €35 for every other bag. The values for the free bag (1) and the charge (35) should be defined in an interface called Rates.

Create a method checkAvailability() that calculates and returns the number of seats (int) still available on the flight.

Create a method findOldestPassenger() that calculates and returns the name and age of the oldest person on the flight as a string – see sample output.

**Test Class**

Create a Flight object with a capacity of 200 and a duration of 3.5 hours.

The passenger details are stored in a text file data.txt as follows:

John,55,2

Ken,26,1

Mary,30,2

Kate,99,0

Jill,89,3

Create the text file in your files folder and copy the above data into the file.

You need to open the text file and read in the values and use these values to create passenger objects.

Call the appropriate method to add each Passenger object to the array list in the Flight class

Call the method to display the passenger list for the flight

Call the method to display the number of seats still available

Call the method to display the details of the oldest passenger on each flight

**Sample Output**

Passenger List for the Flight

John,55,2,Baggage Charge: €35

Ken,26,1,Baggage Charge: €0

Mary,30,2,Baggage Charge: €35

Kate,99,0,Baggage Charge: €0

Jill,89,3,Baggage Charge: €70

Number seats available:195

Oldest Person: Kate age:99 on the flight